



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,606	11/21/2003	PohSoon Chong	STL11454	3124

7590 09/18/2006

Seagate Technology LLC
1280 Disc Drive
Shakopee, MN 55379

EXAMINER

GUYTON, PHILIP A

ART UNIT PAPER NUMBER

2113

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,606	Applicant(s) CHONG ET AL.	
	Examiner Philip Guyton	Art Unit 2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because of the following informalities:

The claim depends on later claim 7. According to MPEP 608.01(m), "*Claims should preferably be arranged in order of scope so that the first claim presented is the least restrictive. All dependent claims should be grouped together with the claim or claims to which they refer to the extent practicable.*"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The preamble of claim 16 recites "a data storage device" while one of the elements is "a plurality of sequences for generating and using." This language renders the claim indefinite because it is not clear how the processes of generating and using apply to the structure of the data storage device. Thus, the metes and bounds of the claim are not particularly pointed out and distinctly defined. Claim 13-15 and 17-20 are rejected under similar rationale.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The preamble of claim 16 recites "a data storage device," yet one of the elements is "a plurality of sequences for generating and using," which is not a concrete thing or object. Since this limitation is not realized as a concrete thing, there is nothing connecting it to the remaining elements of the claim, and thus there is no concrete and useful result. Therefore, the claimed invention cannot be a process, machine, manufacture, or composition of matter as required by 35 U.S.C. 101. At best, the "plurality of sequences for generating and using" is directed to a data algorithm, which in this situation is also non-statutory because it is not realized on a computer-readable medium. Claims 13-15 and 17-20 are rejected under similar rationale.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2113

6. Claims 1-20 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent App. No. 2001/0055172 to Yip et al. (hereinafter Yip).

With respect to claim 1, Yip discloses a method of managing spatially related defects on a data storage media surface in a data storage device (paragraph 8 – “*The present invention...scratches on the disk*”) comprising:

identifying defect locations on the media surface (paragraph 19 – “*To pack more data...in a buffer memory*”);

determining whether the location of an identified defect is within a predetermined window of another identified defect location on the media surface (paragraph 22 – “*To do this, the defect entries...grouped into one cluster*”);

if the location is within the predetermined window, characterizing the defects in the window as a scratch (paragraph 22 – adjacent defects grouped together as cluster); and

generating a scratch tracking table having a start index and an end index for each scratch (Table 2 and paragraph 24 – “*The pattern is represented...in Table 2 below*”).

With respect to claim 2, Yip discloses padding the scratch (paragraph 34 – “*An alternative embodiment...shown in Table 8*”).

With respect to claim 3, Yip discloses wherein the characterizing operation comprises:

assigning a unique scratch index to the scratch (Table 2 – parameters are unique to this scratch); and

associating each defect within the window with the unique scratch index (Table 1 becomes Table 2 – each defect in Table 1 associated with scratch index represented by Table 2).

With respect to claim 4, Yip discloses generating a scratch index table associating each identified defect with a scratch index (paragraph 25 – *“The set of...the first defect table”*).

With respect to claim 5, Yip discloses wherein the determining operation comprises:

loading an identified defect location in a register (paragraph 23 – *“For each cluster...the largest address”*); and

comparing the defect location and a last identified defect location of each identified scratch against predetermined window criteria (paragraphs 32-33 – *“FIG. 5 shows...shown in Table 7”*).

With respect to claim 7, Yip discloses a method comprising:

identifying defect locations on a data storage media (paragraph 19 – *“To pack more data...in a buffer memory”*);

tabulating the identified defects in a defect list (Table 1);

determining whether one or more defect locations lies within a predetermined window of another defect location (paragraph 22 – *“To do this, the defect entries...grouped into one cluster”*);

assigning a unique scratch index to each defect location within the predetermined window (Table 2 – parameters are unique to this scratch);

generating a scratch tracking table listing a start index for a first defect location in the window and an end index for a last defect location in the window for each scratch index assigned (Table 2 and paragraph 24 – *“The pattern is represented...in Table 2 below”*); and

generating a scratch index table associating a scratch index with each defect location (paragraph 25 – *“The set of...the first defect table”*).

With respect to claim 6, Yip discloses wherein the predetermined window criteria comprises a number of cylinders and a number of bytes (Table 2 – parameters include cylinder and sector, wherein the scratch, angle and span parameters represent number of bytes).

With respect to claim 8, Yip discloses using the scratch tracking table and the scratch index table to determine whether a read or write command is to be redirected to another data storage media location (paragraph 3 – *“Upon power-on of the...disc drive operations”* and paragraph 8 – *“This second defect table will be stored in the buffer and used by the firmware to skip over defects during operation”*).

With respect to claim 9, Yip discloses:

retrieving an entry in the scratch tracking-table having a first scratch index ();
searching the scratch index table for defect locations associated with the first scratch index;

padding the scratch; and

repeating the retrieving, searching and padding operations for a next scratch index (paragraph 34 – *“An alternative...shown in Table 8” and Table 7 and Table 8*).

With respect to claim 10, it is deemed inherent to the invention of Yip wherein the repeating operation includes a query operation asking whether an end of the scratch tracking table has been reached prior to retrieving the next scratch index, as it would not continue the retrieving, searching, and padding if there were no other scratches to be padded.

With respect to claim 11, Yip discloses a system for managing scratches on a data storage media in a data storage device (paragraph 8 – *“The present invention...scratches on the disk”*) comprising:

a controller adapted to control access by a host to and from the data storage media (figure 1, items 24,22,20,26,28,30 and paragraph 18 – *“To read or write data...with the head 24”*);

a memory coupled to the controller (figure 1, item 12 and paragraph 18 – *“To read or write data...with the head 24”*);

a scratch index table in the memory having a unique index entry for each identified defect location on the data storage media and an associated scratch index entry for each defect location (Table 2 and paragraph 24 – *“The pattern is represented...in Table 2 below”* – parameters are unique to this scratch); and

a scratch tracking table in the memory having, for each scratch index entry, a start index, and end index, and an end defect location for each identified scratch index (Table 2 and paragraph 24 – *“The pattern is represented...in Table 2 below”*).

With respect to claim 12, Yip discloses a buffer in the controller wherein the scratch tracking table and scratch index table are utilized in the buffer to identify defect

locations (paragraph 8 – *“This second defect table will be stored in the buffer”* and paragraph 19 – *“The defect table may be stored on the disc, or when the disc drive is in operation, in a buffer memory”*).

With respect to claim 13, Yip discloses:

an operational sequence for identifying defect locations on the media surface (paragraph 19 – *“To pack more data...in a buffer memory”*);

an operational sequence for determining whether the location of an identified defect is within a predetermined window of another identified defect location on the media surface (paragraph 22 – *“To do this, the defect entries...grouped into one cluster”*);

an operational sequence for characterizing the defects in the window as a scratch, if the location is within the predetermined window (paragraph 22 – adjacent defects grouped together as cluster); and

an operational sequence for generating a scratch tracking table having a start index and an end index for each scratch (Table 2 and paragraph 24 – *“The pattern is represented...in Table 2 below”*).

With respect to claim 14, Yip discloses an operational sequence for padding each scratch in the scratch tracking table (paragraph 34 – *“An alternative embodiment...shown in Table 8”*).

With respect to claim 15, Yip discloses wherein the characterizing operational sequence comprises:

assigning a unique scratch index to the scratch (Table 2 – parameters are unique to this scratch); and

associating each defect within the window with the unique scratch index (Table 1 becomes Table 2 – each defect in Table 1 associated with scratch index represented by Table 2).

With respect to claim 16, Yip discloses a data storage device comprising:

a data storage medium (figure 1, item 12 and paragraph 18 – *“To read or write data...with the head 24”*);

a controller coupled to the data storage medium (figure 1, items 24,22,20,26,28,30 and paragraph 18 – *“To read or write data...with the head 24”*);

a plurality of sequences for generating and using a scratch tracking table and a scratch index table to characterize defects identified on the data storage medium as belonging to one or more identified scratches (paragraph 8 – *“The present invention...scratches on the disk”*).

With respect to claim 17, Yip a sequence for padding identified scratches on the medium (paragraph 34 – *“An alternative embodiment...shown in Table 8”*).

With respect to claim 18, Yip discloses wherein a sequence for generating a scratch tracking table includes operations of:

identifying defect locations on the data storage medium (paragraph 19 – *“To pack more data...in a buffer memory”*);

tabulating the identified defects in a defect list (Table 1);

determining whether one or more defect locations lies within a predetermined window of another defect location (paragraph 22 – *“To do this, the defect entries...grouped into one cluster”*);

assigning a unique scratch index to each defect location within the predetermined window (Table 2 – parameters are unique to this scratch); and

generating the scratch tracking table listing a start index for a first defect location in the window and an end index for a last defect location in the window for each scratch index assigned (Table 2 and paragraph 24 – *“The pattern is represented...in Table 2 below”*).

With respect to claim 19, Yip discloses a sequence for generating a scratch index table associating a scratch index with each defect location (paragraph 25 – *“The set of...the first defect table”*).

With respect to claim 20, Yip discloses a sequence for padding each scratch listed in the scratch tracking table (paragraph 34 – *“An alternative embodiment...shown in Table 8”*).

Conclusion


7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Guyton whose telephone number is (571) 272-3807. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PG
9/14/06


ROBERT BEAUSOLIEL
SUPERVISOR/PATENT EXAMINER
TECHNOLOGY CENTER 2100